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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/758,214      | 01/16/2004  | Karl Schreiber       | 2560-0419           | 5714             |

7590

07/01/2005

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Washington, DC 20003

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| EXAMINER |
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KERSHTEYN, IGOR

|          |              |
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| ART UNIT | PAPER NUMBER |
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3745

DATE MAILED: 07/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/758,214

Applicant(s)

SCHREIBER, KARL

Examiner

Igor Kershteyn

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 15-24 is/are rejected.
- 7) ☒ Claim(s) 14 and 25 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12/09/2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Specification*

The disclosure is objected to because of the following informalities:

In page 7, line 1, "claim d" should be --claimed.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 8-12, 15, and 21-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Wiberg (2,463,340).

In figures 1-5, Wiberg teaches a fan blade for a gas-turbine engine, comprising: a substantially solid blade root portion 2 constructed and arranged to be attachable to a fan rotor disk 1; a blade tip portion 4 opposite the blade root portion 2, the blade tip portion 2 including at least one cavity 11 starting out from a free face of the blade tip portion (not numbered) and extending in a direction toward the blade root portion 2.

**Note.** Claims 8-12 are product-by-process claims and the apparatus or structure claimed is identical to that described in the reference presented by the examiner and

thus anticipated by the reference because patentability of a product does not depend on its method of production. See MPEP 2113.

Claims 1, 5, 8, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Kulina (4,097,192).

In figures 1 and 2, Kulina teaches a fan blade 14b for a gas-turbine engine, comprising: a substantially solid blade root portion (not numbered) constructed and arranged to be attachable to a fan rotor disk 10; a blade tip portion opposite the blade root portion, the blade tip portion including at least one cavity 16 starting out from a free face of the blade tip portion and extending in a direction toward the blade root portion.

**Note.** Claim 8 is a product-by-process claim and the apparatus or structure claimed is identical to that described in the reference presented by the examiner and thus anticipated by the reference because patentability of a product does not depend on its method of production. See MPEP 2113.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-4, and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kulina (4,097,192) in view of Sharp (1,970,435).

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Kulina teaches all the claimed subject matter except that he doesn't teach the fan blade includes several cavities and at least one of a length and a cross-sectional area of the several cavities varies over the width of the fan blade, wherein one of the cavities situated closer to a leading edge of the fan blade has at least one of a smaller length and a cross-sectional area than a cavity situated closer to a center of the blade, wherein a cavity near a center of the blade has the greatest length.

Sharp, in figures 2 and 3, teaches a blade 12, the blade 12 includes several cavities 14 and at least one of a length and a cross-sectional area of the several cavities 14 varies over the width of the blade 12, wherein one of the cavities 14 situated closer to a leading edge of the blade has at least one of a smaller length and a cross-sectional area than a cavity 14 situated closer to a center of the blade 12, wherein the cavity 14 near a center of the blade 12 has the greatest length.

Since Kulina and Sharp are analogous art because they are from the same field of endeavor, that is the vibration dampening in blades art, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the blade of Kulina with the cavities as taught by Sharp for the purpose of further improving the vibration dampening.

Claims 6 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kulina (4,097,192) in view of Sharp (1,970,435).

Kulina teaches all the claimed subject matter except that he doesn't teach the twisted blade.

Sharp, in figure 3, teaches a fan blade 12 having at least one cavity 14, a longitudinal axis of the at least one cavity 14 follows a twist of the blade 12.

Since Kulina and Sharp are analogous art because they are from the same field of endeavor, that is the vibration dampened blade art, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the blade of Kulina with the twisted configuration as taught by Sharp for the purpose of improving the efficiency of the turbo machine.

Claims 7, 13, 20, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kulina (4,097,192) in view of Lee et al. (5,738,491).

Kulina teaches all the claimed subject matter except that he doesn't teach a cavity cross-section decreases gradually at its bottom end facing the blade root portion, the blade tip portion comprises several cavities separated from each other by reinforcing ribs.

Lee et al., in figures 5 and 6, teach a blade 34B, having a tip portion 54c,d and a cavity 56, a cavity cross-section decreases gradually at its bottom end facing the blade root portion (Figure 6), the blade tip portion 54c,d comprises several cavities 56 separated from each other by reinforcing ribs 62.

Since Kulina and Lee et al. are analogous art because they are from the same field of endeavor, that is the gas-turbine engine blade art, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the tip portion of Kulina with the cavity cross-section decreasing gradually at its bottom end

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facing the blade root portion, and the blade tip portion with several cavities separated from each other by reinforcing ribs as taught by Lee et al. for the purpose of further improving the vibration dampening and structural rigidity of the blade tip portion.

### ***Allowable Subject Matter***

Claims 14 and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Prior Art***

Prior art made of record but not relied upon is considered pertinent to Applicant's disclosure and consist of two patents.

Carreno (4,497,613) is cited to show a blade for a gas turbine engine having a cavity extending from a tip portion towards a root portion but fails to teach the blade being a fan blade.

Lee et al. (5,348,446) is cited to show a blade for a gas turbine engine having a cavity extending from a tip portion towards a root portion but fails to teach the blade being a fan blade.

### ***Contact information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Kershteyn whose telephone number is

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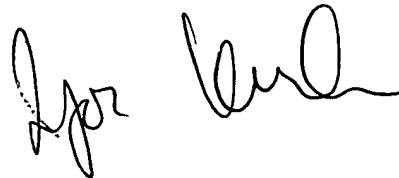
**(571)272-4817**. The examiner can be reached on Monday-Friday from 8:00 a.m. to 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look, can be reached on **(571)272-4820**. The fax number is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308 0861.

IK

June 27, 2005

A handwritten signature in black ink, appearing to read 'Igor Kershteyn', written over a horizontal line.

**Igor Kershteyn**  
**Patent examiner.**  
**Art Unit 3745**